NEODENT

ZI TRANSMUCOSAL
Ø 5.0

Manual

ZiLock® connection

Surgery Guided

NEW
Surgical MultiKit™

Ceramic Implant System

A NEW **MINDSET**

OPTIMIZED FOR **POSTERIOR REHABILITATION**

COMPREHENSIVE TREATMENT SOLUTIONS USING CERAMIC IMPLANTS

ROBUSTNESS AND STABILITY WITH GREAT **ESTHETIC RESULTS**

EFFICIENCY AND PREDICTABILITY WITH **GUIDED SURGERY**

SUMMARY

ABOUT **ZI TRANSMUCOSAL**
Ø 5.0

The Neodent® Zi Transmucosal Ø 5.0 implant was designed to provide a ceramic solution optimized for the posterior region, focused on delivering robustness and reliability under high occlusal loads. In addition, shorter length versions allow rehabilitation in cases with complex implant placement, such as vertical bone atrophy. Therefore, this implant has come to be more versatile and to adapt to more clinical challenges.

These implants are indicated for anterior and posterior rehabilitation of the upper jaw and lower jaw, supporting prosthetic components, such as crowns or artificial teeth, to restore masticatory function. They can be used to support single restorations, using the immediate or conventional loading, and can even be installed immediately after tooth extraction.

FEATURES OF ZI TRANSMUCOSAL Ø 5.0:

The internal connection of the Zi Transmucosal is ZiLock® Transmucosal, which is a tissue-level connection.

- Predominantly cylindrical design with slightly tapered apex and cylindrical body
- It has the following lengths: 5.0, 8.0, 10 and 11.5 mm
- Helical flutes channels
- Compatible only with prosthetic components of Zi Transmucosal Ø 5.0 ceramic implants
- 5.0 mm of diameter
- Compacting trapezoidal threads
- Optimized for more complex rehabilitations, such as larger alveoli and the posterior region, due to its robustness that promotes excellent resistance
- Compatible with complete digital flow, from data acquisition to surgery and prosthetic rehabilitation

Ø 5.0

5.0 mm	8.0 mm	10.0 mm	11.5 mm	
				
180.513	180.514	180.515	180.516	Indicated for all mouth regions.

SURFACE TREATMENT

The implant surface is treated with acid blasting, based on the successful NeoPoros® protocol, causing it to contain macro and micro roughness. The adhesion of the bone tissue around the implant is directly proportional to the surface treatment, since the physical interaction between the bone cells and the implant surface is responsible for the expected bone deposition.[1]

Representative image of the implant surface - 5000x magnification using Scanning Electron Microscopy (SEM).

Osseointegration through regeneration and remodeling is responsible for the secondary stability of the implant[2], and it is highly dependent on the strong adhesion between the bone and the implant. The primary stability is due to the interaction of the implant with the cortical bone. In the case of ceramic implants, osseointegration is maximized by surface treatment, which increases the roughness of the implant body and offers clinically very similar results to osseointegration with titanium implants.[3] The transmucosal collar has a height of 1.8 mm and favors tissue adhesion around the implant, decreasing the accumulation of biofilm, increasing blood flow and reducing the risk of peri-implant diseases, this increases the chances of secondary stability and long-term implant success.[4]

Top view of the implant and the connection.

ZILOCK® TRANSMUCOSAL

ZiLock® is a ceramic straight internal connection with 6 lobes and 6 points. This indexation results in a precise abutment fit, preventing rotation.

The outcome is a system that may provide higher treatment flexibility when compared to one-piece implants.

Note: The ZiLock Transmucosal Ø 5.0 connection is not equal to ZiLock Bone Level, so prosthetic components are incompatible with each other.

GUIDED SURGERY
ZI TRANSMUCOSAL
Ø 5.0

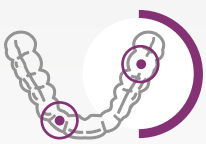
Considering the precise positioning and combination of ceramic material with the soft tissue preservation, the guided protocol is accurate compared to conventional procedures[5] and can reduce the time of the surgical procedure.[6]

Zi MultiKit

The new Neodent® Zi MultiKit™ is an all-in-one kit designed for both conventional and guided protocols, allowing a more organized, efficient, and adaptable surgical environment.

PREDICTABILITY
Advanced planning and guided protocol to achieve desired clinical outcome.

ACCURACY
Advanced planning and guided protocol to achieve desired clinical outcome.



EFFICIENCY
Reduction of the need for decision-making during the surgical protocol.

PRE-OPERATIVE **PLANNING**

Applications

The Zi Transmucosal Ø 5.0 ceramic implant is indicated as support for single prosthetics, in immediate or conventional loading protocols in all bone types in the upper jaw and lower jaw. For immediate loading application, primary stability must reach at least 35 N.cm and the patient must have physiological occlusion.

Zi Transmucosal Ø 5.0 is optimized for posterior regions as it is more robust and resistant and has a larger diameter for larger alveoli.

All Zi Transmucosal Ø 5.0 implants can be used both in the anterior and posterior region of the upper jaw and lower jaw. Implants with 5.0 mm and 8.0 mm in length are not recommended for use on bone type IV. The implants with 10.0 mm and 11.5 mm in length can be used in all types of bone.

Length	5.0 mm	8.0 mm	10.0 mm	11.5 mm
Bone type				
I	✓	✓	✓	✓
II	✓	✓	✓	✓
III	✓	✓	✓	✓
IV	-	-	✓	✓

Implant positioning and peri-implant tissue

The good positioning of the implant is fundamental to a successful treatment, as this will enable the correct and ideal prosthetic rehabilitation to be achieved for each case. For this, it is important to select the model, diameter, length, position, and quantity of implants that should be selected for each clinical case, considering the anatomy, the region to be rehabilitated, the quality and the amount of bone, as well as the available space. It is recommended to take preoperative tests, such as computed tomography and radiographic examinations, blood tests when the patient has some important systemic condition for the success of the treatment, or to check if there are no contraindications and align with the patient about their expectations. Finally, it is necessary to perform a diagnostic wax-up or digital reverse planning to ensure adequate alignment between implant(s), prosthetic component(s) and prosthesis(s).

Diagnostic wax-up or digital reverse planning can be used to manufacture the radiographic and/or surgical guide and can be used as a provisional restoration. Physiological occlusion is determinant for short- and long-term implant

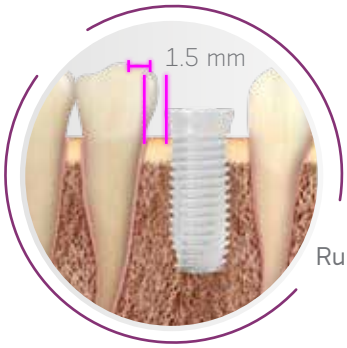
success, since immediate loading procedures should not be performed in patients with occlusion problems.

- Implant abutments should always be loaded axially, with the long axis of the implant aligned with the cuspids of the opposite teeth.
- Position and number of implants are determined according to the anatomy and the prosthetic space available for each patient case.

The final response of the hard and soft tissues is highly influenced by the position of the abutment. Therefore, the three-dimensional positioning of the implant needs to be studied, these are:

Mesiodistal implant positioning

It is important that the patient has at least 1.5 mm of bone around the implant, and at least 3 mm of bone between implants. Therefore, there should be enough space for the distance of 1.5 mm to the adjacent tooth plus the added distance between implants and their adjacent teeth. Single implants should be placed in the middle of the alveoli.

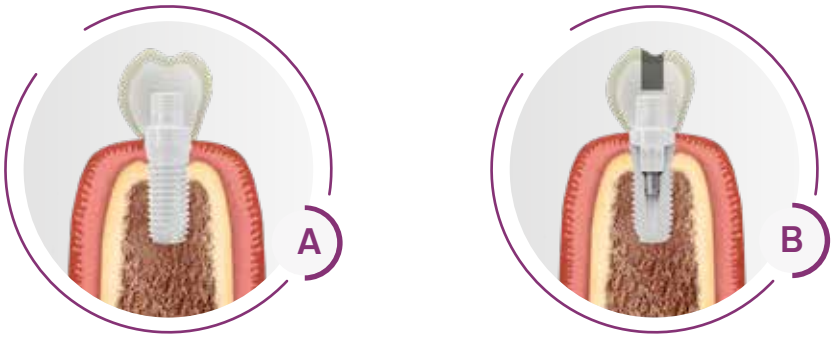


Rule 1

Rule 2

Buccal-lingual implant positioning

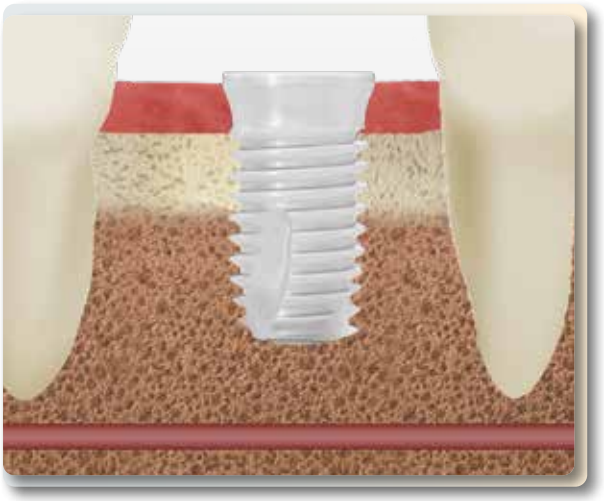
The vestibular and lingual bone layer must be at least 1.0 mm thick to ensure a good response of soft and hard tissues and good restoration adjustment. In addition, the clinician should decide the angulation of the implant, as well as whether the prosthesis will be cemented or screwed-retained.



Example of implant positioned for cement-retained prosthesis (A) and screw-retained prosthesis (B), where there is access to the retaining screw.

Coronal apical: The height should be decided according to the patient's bone availability. The Neodent Zi Transmucosal Ø 5.0 is a tissue-level implant that must be installed into the bone up to the thread portion, with the polished portion neck at tissue level. During planning, important anatomical structures such as nerves, maxillary sinus and blood vessels should be considered.

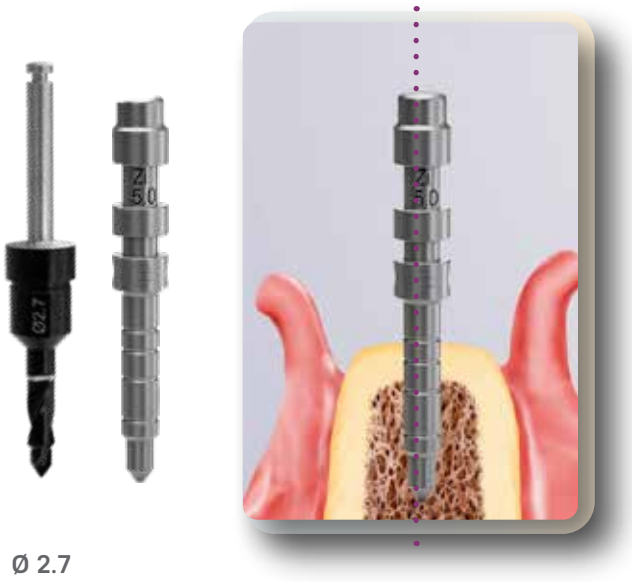
- The recommendations presented here should be considered as basic guidelines for correct biological healing, adequate restorations and patient oral hygiene. The design of the restoration has a strong impact on occlusion and hygiene and should be considered.



Positioner/Direction indicator for adjacent bone diagnosis:

This product is an instrument used in surgical procedures to check the position of the perforations. It is compatible with the Zi Transmucosal Ø 5.0 implant line, as it has channels matching the heights of Zi Transmucosal Ø 5.0 implants. The product has a hybrid function of X-Ray Positioner and Direction indicator in a single instrument, so the product will serve two purposes during the surgical procedure: To verify the position of the perforations in relation to the antagonist arch, and to assess the depth of the osteotomy through periapical radiography.

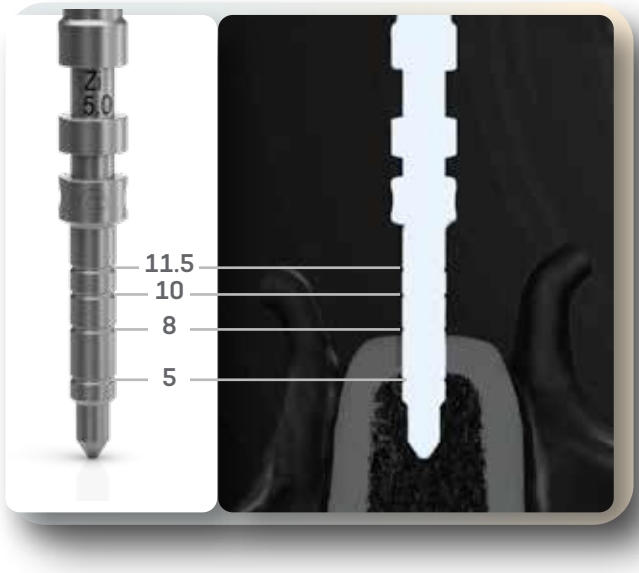
Direction indicator function: After drilling with the diameter drill Ø 2.7, the Direction indicator is inserted into the drill using its narrow end to check the angle of the drill. After drilling with the diameter drill Ø 4.0, insert the Direction indicator at its wider end to recheck the drilling angle.



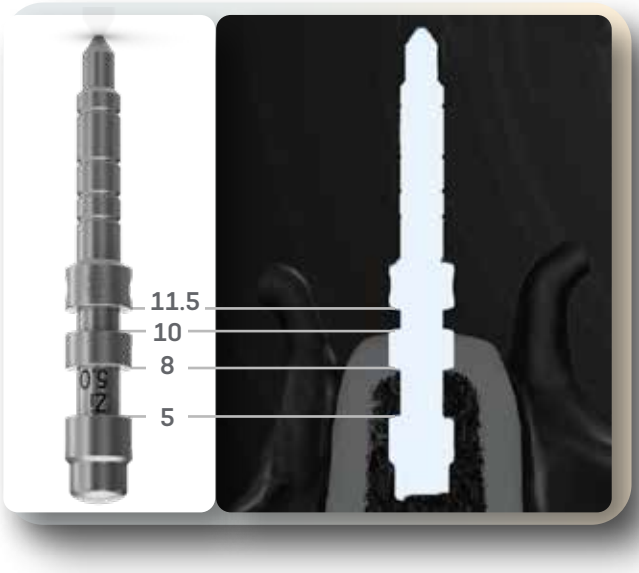
Ø 2.7

Ø 4.0

X-Ray Positioner function: After drilling with the Zi Transmucosal Ø 2.7 drill and then with the Zi Transmucosal Ø 4.0 drill, insert the X-Ray Positioner into the perforated cavity to perform the evaluation radiography according to the parallelism technique. The implant selection should be based on the channels that indicate the achieved depth (implant length), as seen in the radiograph.



Ø 2.7



X-Ray Positioner function

Note:

The direction indicator has a central hole for the safety wire.

SURGICAL **PROCEDURES**

Implant bed preparation

Diameter, position, and number of implants should be selected based on the anatomy and spatial constraints. Basic implant bed preparation involves ridge preparation and drilling with the Zi Transmucosal Ø 5.0 under water cooling. The diameter and the design (tapered) of the selected implant define the instruments to be used. The final implant bed preparation includes perforation and the use of a bone tap, in which the type of implant and bone density determine the instruments to be used.

After opening a gingival flap and exposing the bone for conventional surgery, or installing the Surgical Guide for guided surgery, the preparation of the alveolar ridge begins. Once the implant position was previously determined and with the help of the surgical guide, the cervical cortical layer is perforated with the initial drill, optional for conventional surgery and visually verified for its spatial positioning. The indicated rotations per minute (RPM) for drilling depend primarily on the bone density, where in bone types I and II is used 800-1200 RPM and types III and IV is used 500-800 RPM. This initial drilling works as a guide. After, the Zi Transmucosal Ø 2.7 drill is used to reach the desired depth for the chosen implant at a **bone level**. The next drill is used to prepare the osteotomy following a sequence according to the implant type and diameter, as chosen during pre-operative planning. All drills are adapted to contra-angle according to the ISO 1797-1 – Dental rotary instruments - Shank.

Drilling Protocol: Precautions

The sequence of drills must be followed and performed considering anatomy and spatial circumstances. The wrong implant instrument combination can lead to bone damage. Do not exceed the maximum insertion torque of 60 N.cm during the implant placement.

Applying a torque higher than 60 N.cm may cause damage and/or break the implant. If maximum torque is reached and the insertion cannot be concluded, it is recommended to remove the implant and reprepare the implant bed for a new insertion attempt.

Bone type I and II

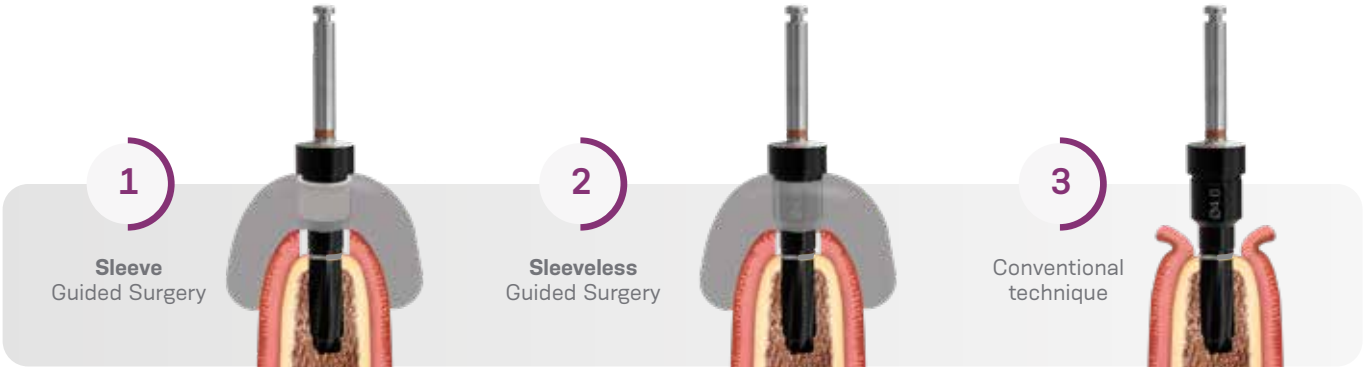
Speed of the Zi Transmucosal drill Ø 5.0: 800-1200 RPM; Use of bone tap is required.

Bone type III and IV

Speed of the Zi Transmucosal Ø 5.0 drill: 500-800 RPM.

There are three scenarios indicated for the use of Zi Transmucosal Ø 5.0 drill. The first scenario is the possibility of working with a surgical guide equipped with sleeves, which will guide the drill through the hole until it is stopped by the top face of the sleeve, as shown below in item 1. Like this is the second scenario, which allows the use of a surgical guide just like the previous one, but without a sleeve, where the drill will pass through the hole generated by the 3D printing on the surgical guide and touch the stop on the top face of the guide represented by item 2. Finally, the third scenario involves the conventional surgical technique where the drill is positioned manually without the guidance of a surgical guide during the perforation of the bone alveoli according to item 3.

Zi Guided Surgery and conventional system



Please check availability in your region.

Neodent® Zi Implant Insertion

- Maximum insertion torque: 60 N.cm
- Minimum torque value for Immediate Loading: 35 N.cm

Length markings on the drills

Zi Transmucosal Ø 5.0 drills have a laser marking for use during conventional surgery. It indicates the depth of the drill for the selected implant. Zi Transmucosal Ø 5.0 drills can also be used in guided surgery and for this purpose, have a stop system that ensures the planned depth.

Procedures before surgery

Zi Transmucosal Ø 5.0 implant instruments are designed for procedures with 3D planning software using cone beam computed tomography (CBCT). They are designed to prepare osteotomy and install Neodent® implants in combination with a surgical guide, with or without the sleeves.

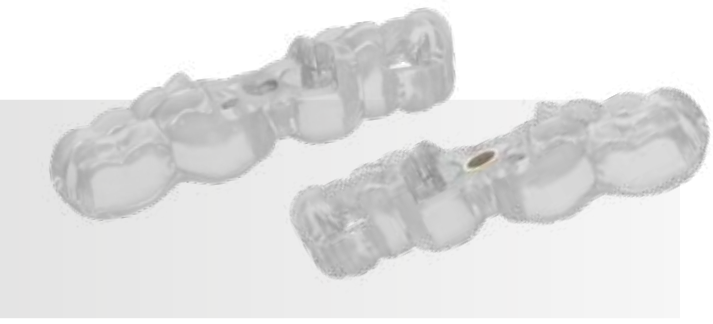
1 Diagnosis/ Data gathering

The treatment plan is based on the diagnosis that is made in the patient's appointment and specific needs. Bone volume and density, anatomy of the restoration area, type of restoration, load type, number of implants, esthetic and functional factors and any other important factors that justify the guided surgery treatment plan must be considered.

Regardless of imaging technology, a CBCT scan (following the correct parameters) is the basis for a precise digital plan and for accurate implant installation. In addition to CBCT, it is necessary to scan, either from a plaster model (semi-digital flow) or directly from the patient's mouth (digital flow). To obtain correct scanning data, the patient should be correctly positioned, and scanning instructions/ parameters should be followed, following the software manufacturer's instructions for use (IFU).

2 Virtual planning

The 3D data set (DICOM) can be imported directly into commercially available planning software (for example, coDiagnostiX™) and superimposed with the dental impression extracted with the scanners (STL File). The implant is positioned based on the patient's anatomy and the desired prosthetic result.



3 Surgical Guide Production

Once virtual planning has been successfully completed, the treatment plan is sent to the surgical guide manufacturer. Either the software manufacturer or dental prosthesis laboratory can make the surgical guide, depending on the software concept used.

Note: In this step, the surgical guide manufacturer should guarantee compatibility with Neodent Zi Transmucosal instruments, using Neodent® sleeves for guided surgery, positioned according to Neodent® parameters.
Note 2: Zi Transmucosal offers sleeveless guided surgery technique. It is important to correctly select the solution's library on the planning software.
(Some products may not be available for purchase yet. For more information, please contact your local distributor).

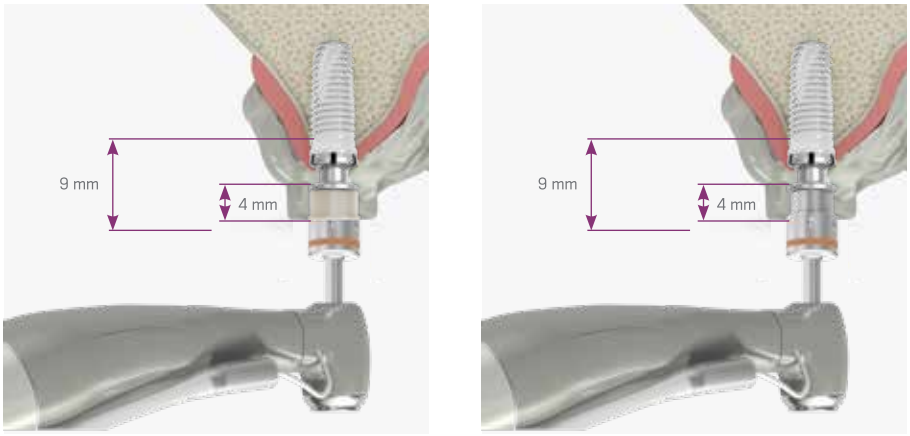
General aspects

Once the surgical guide is placed in the patient's mouth, with optional use of the Palatal Setter, the osteotomy is prepared with the instruments accompanying Zi Transmucosal Ø 5.0 Multikit. The surgical protocol, provided along with the surgical guide, states which instruments are required for preparing each surgical site. The Zi Transmucosal Ø 5.0 instruments allow fully guided bed preparation using drills with depth control and guided implant insertion.

The ability to open the patient's mouth should be sufficient to allow the correct use of Zi Transmucosal Ø 5.0 drills in guided surgery.

Zi Transmucosal Ø 5.0 features a specially developed line of drills designed for use directly with the surgical guide sleeve (or directly with the sleeveless system guide).

The standard (offset) distance of the system is 9.0 mm (H9) between the top of the sleeve (or sleeveless guide) and the implant platform, providing sufficient height for the thickness of the soft tissue. The choice of drills should always consider the length of the implant to be installed during the procedure, regardless of its final position in relation to bone level.



In the case of osteotomy for regulating bone crest or multiple extractions, immediate installation of implants with guided surgery technique is not suitable due to bone remodeling after this procedure. The physiological process of ridge reduction may result in structural loss that would be used before planning implant placement.

Tooth-supported or mucosa-supported surgical guides are available, which must be well-designed to fit perfectly in the patient's mouth to ensure the implant placement in the planned position.

SURGICAL GUIDES: SLEEVE OR SLEEVELESS

The Zi Guided System has two options, sleeve or sleeveless, depending on the clinician's preference. This option must be chosen during planning and correctly selected on the planning software using the right library.

SLEEVE GUIDED SURGERY

SLEEVELESS GUIDED SURGERY*

*Please check availability in your region.

Sleeve Option

When using the sleeve option, during digital planning, the sleeve positions should be evaluated. Neodent® Zi Transmucosal Ø 5.0 sleeves are made of PEEK and are white, distinguishing them from other sleeves and preventing the implant from contacting the metal. To design the guide with the sleeve, use the specific rectifier for this purpose.

125.217

125.219

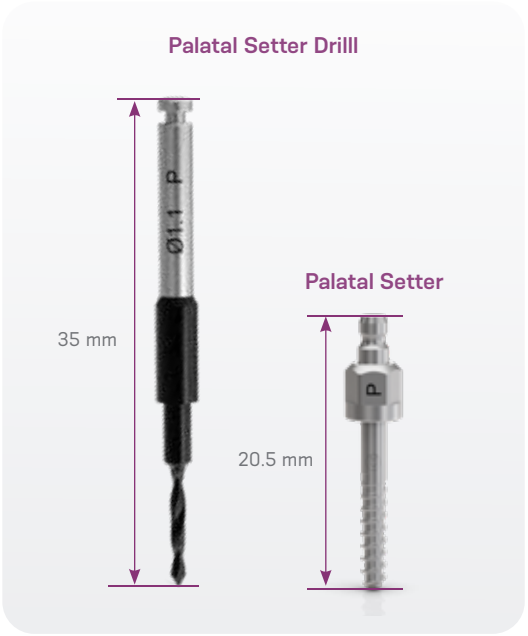
Sleeveless Option

In addition to avoiding markings on zirconia implants caused by contact with metal sleeves, this type of surgical guide simplifies the construction process and can be used in slightly smaller interdental spaces compared to the sleeve option. For this type of guide, a specific rectifier should be used for finishing.

125.220

Surgical guide placement on palate

The Palatal Setter should be used to fix the guide to the palate and provide greater stability when needed. It must be inserted after using the drill, through the sleeve or the hole of the Surgical Guide, with the aid of the Implant Driver for Contra-Angle, using a maximum torque of 20 N.cm. It should be removed with the same driver by applying reverse torque.



Drilling speed:

Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

*Sleeveless options are also available.

Installation of the surgical guide

The Neodent® Fixation Clamp is used to position the guide in the patient's mouth to ensure stability. It is used to keep the surgical guide in place during surgery. For this, it must be installed in an area with sufficient and adequate bone quality. The hole for the Neodent® Fixation Clamp (sleeve or sleeveless) must be wrapped by sufficient surgical guide material for better retention.

Drilling speed:

Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

- Use intermittent drilling technique until reaching the drill stop of 1.3 mm;
- After the osteotomy, fully engage the fixation clamp to the stop.

*Sleeveless options are also available.

SURGICAL PROCEDURES: GENERAL GUIDELINES

The basic implant bed preparation involves the preparation of the bone ridge with a drill, with constant irrigation, to the diameter of the selected implant, which determines the instruments to be used. The final implant bed preparation includes perforation and use of the bone tap, considering the type of implant and bone density.

In bone type I & II, it is necessary to use the bone tap

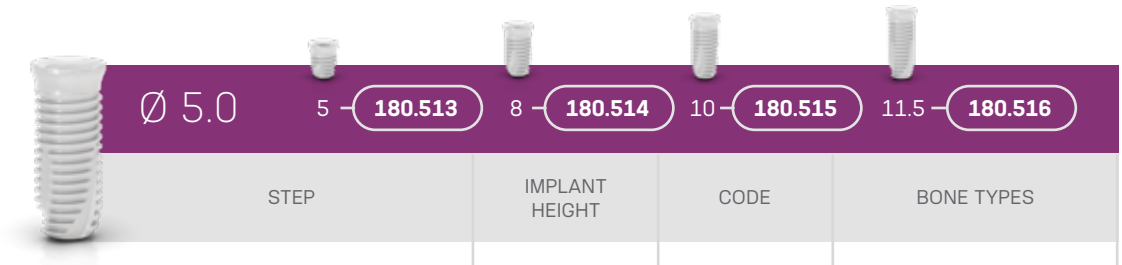
The maximum insertion torque of the Zi Transmucosal Ø 5.0 implant is 60 N.cm and the minimum torque for immediate loading is 35 N.cm. If the torque is between 10 N.cm and 35 N.cm, it is recommended to use a healing abutment, and if the torque does not reach 10 N.cm, it is recommended to use a cover screw.

The final position of Zi Transmucosal Ø 5.0 implants, as the name suggests, is at the level of soft tissue.

Surgical procedures

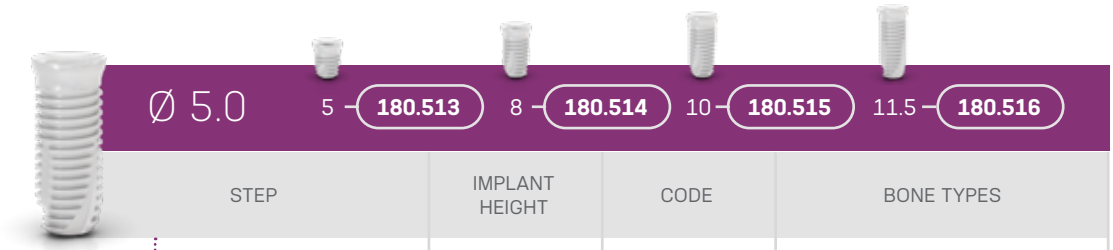
To perform the surgical procedure, the Zi Transmucosal Multikit will be used, which can be used in guided surgery and conventional surgery.

DRILLING PROTOCOL FOR THE NEODENT® **ZI TRANSMUCOSAL IMPLANT Ø 5.0 FOR CONVENTIONAL SURGERY**



	STEP	IMPLANT HEIGHT	CODE	BONE TYPES
1	Initial Drill (OPTIONAL)	-	103.711	✓ All
2	Drill Ø 2.7	5 8 10 11.5	103.712 103.713 103.714 103.715	✓ All
3	Drill Ø 3.4	5 8 10 11.5	103.716 103.717 103.718 103.719	✓ All
4	Drill Ø 4.0	5 8 10 11.5	103.720 103.721 103.722 103.723	✓ All
5	Drill Ø 5.0	5 8 10 11.5	103.724 103.725 103.726 103.727	Type I, II and III
6	Bone Tap Ø 5.0	5 8 10 11.5	111.054 111.055 111.056 111.057	Type I and II
7	Bone Profile Drill (OPTIONAL)	-	103.728	✓ All
08	Zi Transmucosal driver for contra-angle	Short Regular	105.179 105.180	-
09	Zi Transmucosal driver for torque wrench	-	105.178	-

DRILLING PROTOCOL FOR THE NEODENT® **ZI TRANSMUCOSAL IMPLANT Ø 5.0 FOR GUIDED SURGERY**

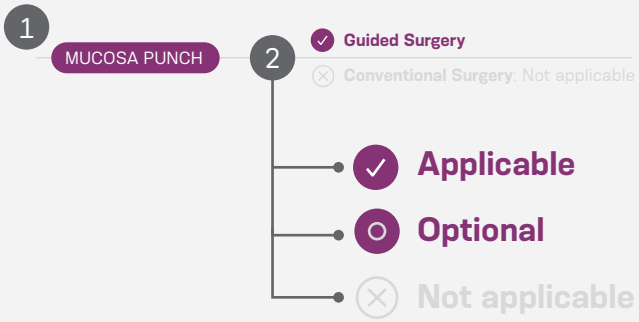


	STEP	IMPLANT HEIGHT	CODE	BONE TYPES
1	Mucosa Punch	-	103.730	✓ All
2	Leveling Drill (OPTIONAL)	-	103.729	✓ All
3	Initial Drill	-	103.711	✓ All
4	Drill Ø 2.7	5 8 10 11.5	103.712 103.713 103.714 103.715	✓ All
5	Drill Ø 3.4	5 8 10 11.5	103.716 103.717 103.718 103.719	✓ All
6	Drill Ø 4.0	5 8 10 11.5	103.720 103.721 103.722 103.723	✓ All
7	Drill Ø 5.0	5 8 10 11.5	103.724 103.725 103.726 103.727	Type I, II and III
8	Bone Tap Ø 5.0	-	111.054 111.055 111.056 111.057	Type I and II
09	Zi Transmucosal driver for contra-angle	Short Regular	105.179 105.180	-
10	Zi Transmucosal driver for torque wrench	-	105.178	-

SURGICAL **PROCEDURES**

HOW TO FOLLOW THE STEPS IN THIS MANUAL

On the left of the section (1) there is an indication of the step on the right if it's applicable for each type of surgery (2).



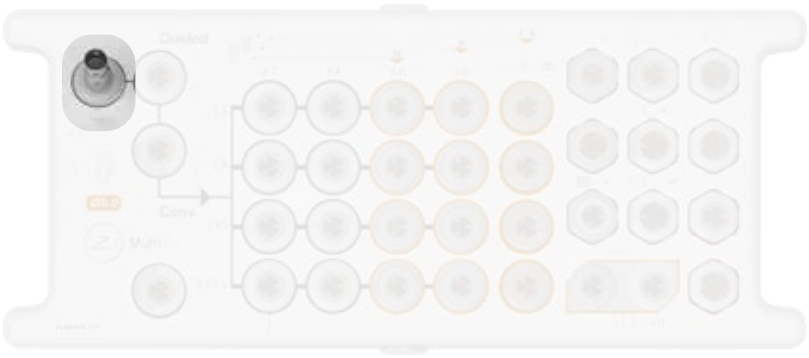
DRILLING PROTOCOL STEP-BY-STEP

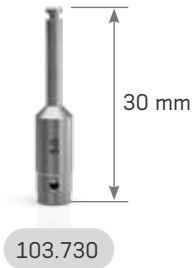
MUCOSA PUNCH

Guided Surgery

Conventional Surgery: Not applicable

A circular incision is made in the tissue before preparing the bone bed using the guided surgery technique. This optional procedure is performed with a tissue punch (a surgical instrument with a contra-angle fitting at one end and a cylindrical cutter at the other).





103.730

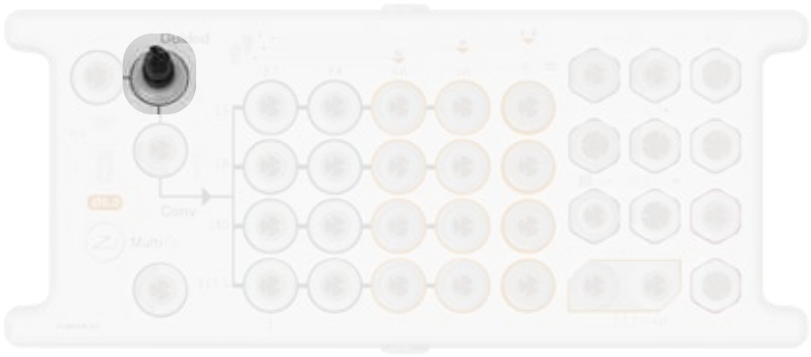
The appropriate number of rotations per minute (RPM) for drilling is 60 RPM.

BONE LEVELLING DRILL

Guided Surgery

Conventional Surgery: Not applicable

The Levelling Drill is used for the preparation of the bone bed before drilling. It has a stop which limits the insertion depth of the drill. Its geometry, size, and diameter are compatible with the sleeve or sleeveless library.



The bone levelling drill has markings corresponding with the implants' diameter.

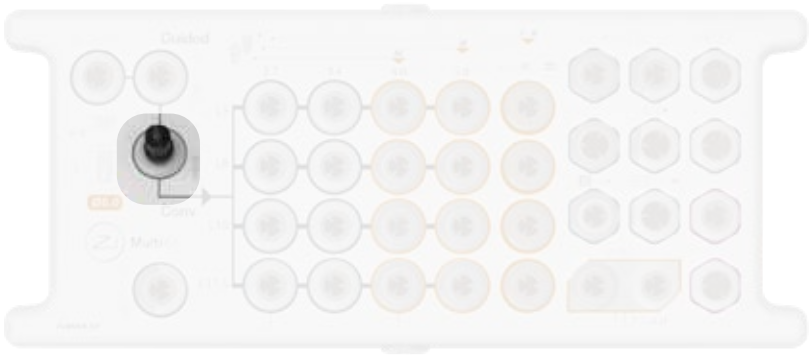
Note: For Guided Surgery it has a ring (stop) which limits the insertion depth of the drills. Insert until the stop reaches the sleeve or the guide on the sleeveless solution.

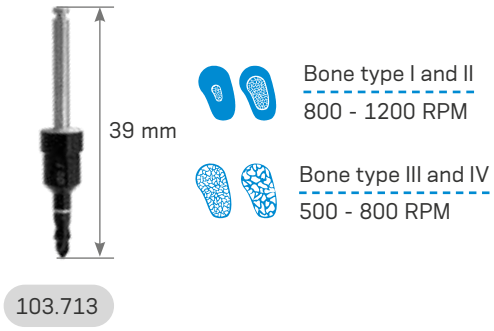
INITIAL DRILL

Guided Surgery

Conventional Surgery

For marking out and breaking the cortical bone, the Initial Drill is used. It has a stop which limits the insertion depth of the drills. Its geometry, size, and diameter are compatible with the sleeve or sleeveless library. During drilling, pressure cannot be excessive, and must be done with continuous movements of insertion and removal, under abundant irrigation. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break.





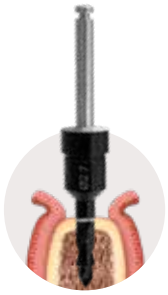
Note: For Guided Surgery it has a ring (stop) which limits the insertion depth of the drills. Insert until the stop reaches the sleeve or the guide on the sleeveless solution.

ZI TRANSMUCOSAL Ø 5.0 Ø 2.7 DRILL

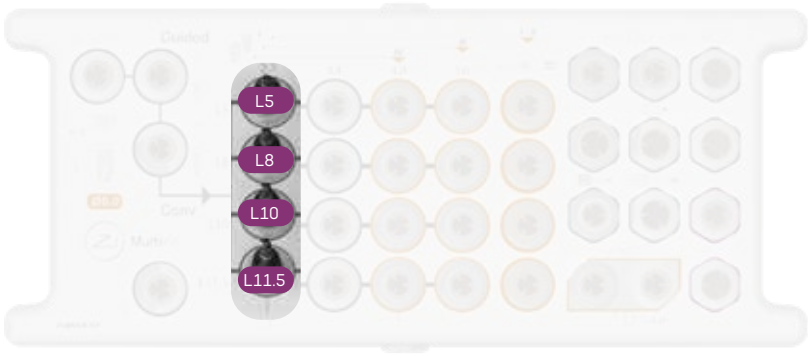
- Guided Surgery
- Conventional Surgery

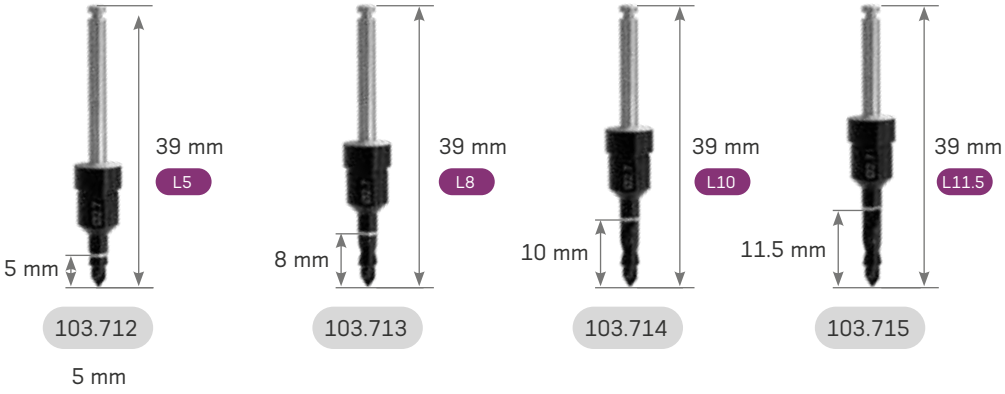
Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The drills have a laser marking for bone level implant placement.

Guided Surgery



Conventional Surgery





Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

Note:

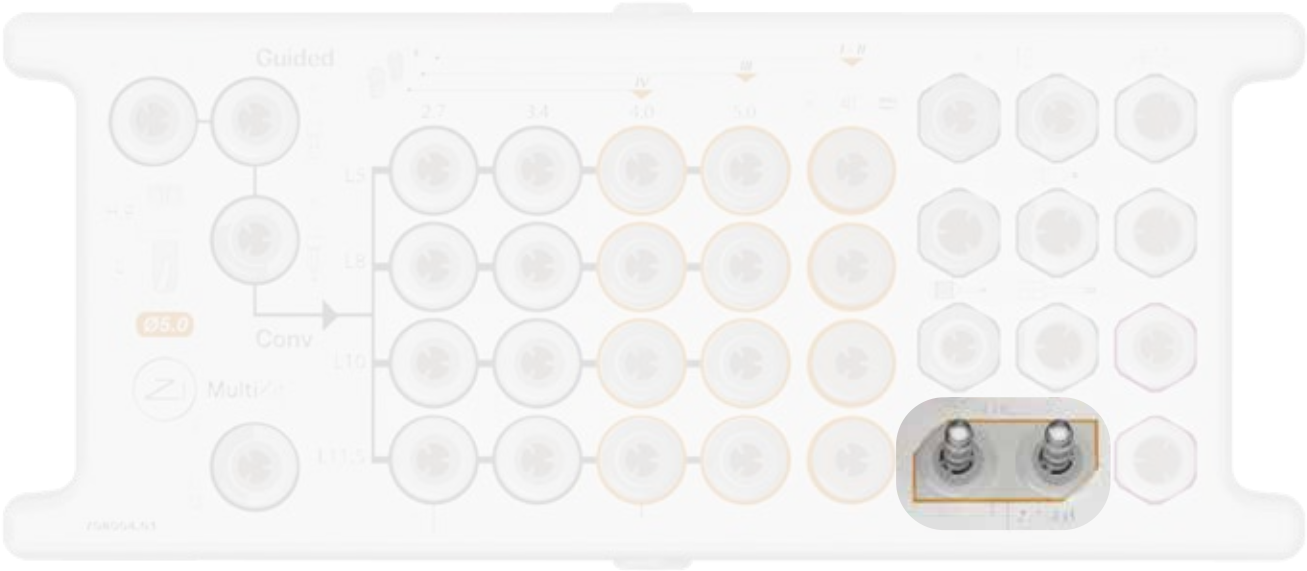
The reduction/preparation of the bone needs to be considered during pre-operative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the insertion depth of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

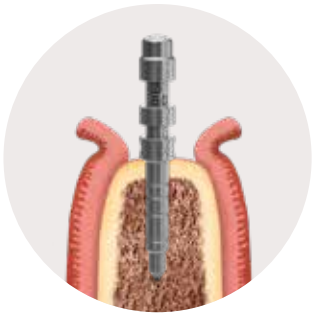
DIRECTION INDICATOR

Guided Surgery: Not applicable

Conventional Surgery

After using the Zi Transmucosal Ø 5.0 Ø 2.7 drill, check the implant axis using the thinner side of the direction indicator.





Conventional Surgery

129.040

Note:

The Direction Indicator pin is fully inserted into the drilled area, allowing visualization of the drill hole relative to the anatomical structures.

The direction indicator has a central hole for the safety wire.

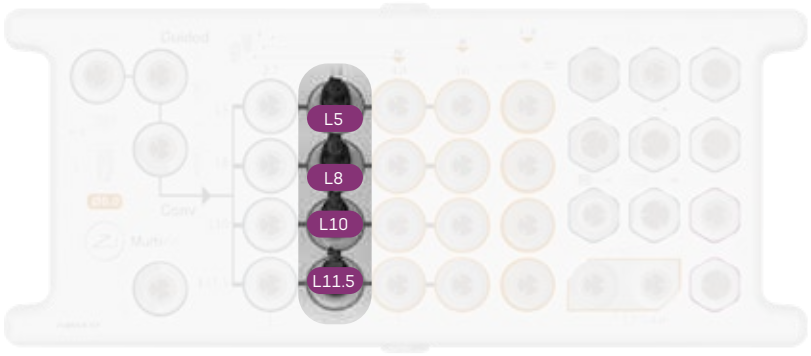
ZI TRANSMUCOSAL Ø 5.0 Ø 3.4 DRILL

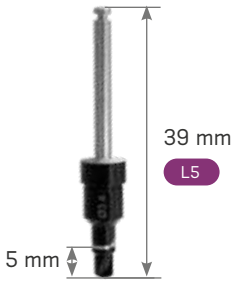
- Guided Surgery
- Conventional Surgery

Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The drills have a laser marking for bone level implant placement.

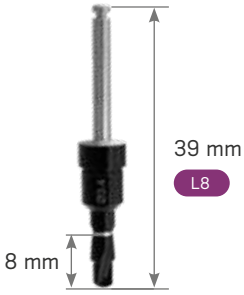
Guided Surgery

Conventional Surgery

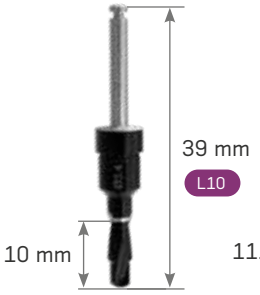




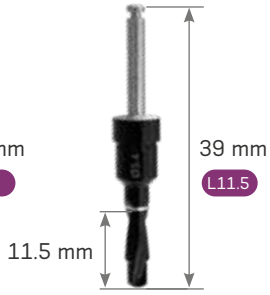
103.716



103.717



103.718



103.719

Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

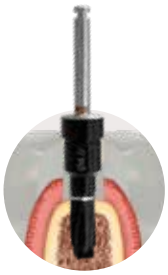
Note:

The reduction/preparation of the bone needs to be considered during pre-operative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the insertion depth of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

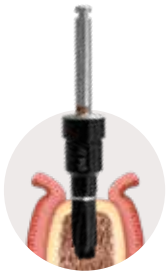
ZI TRANSMUCOSAL Ø 5.0 Ø 4.0 DRILL

- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

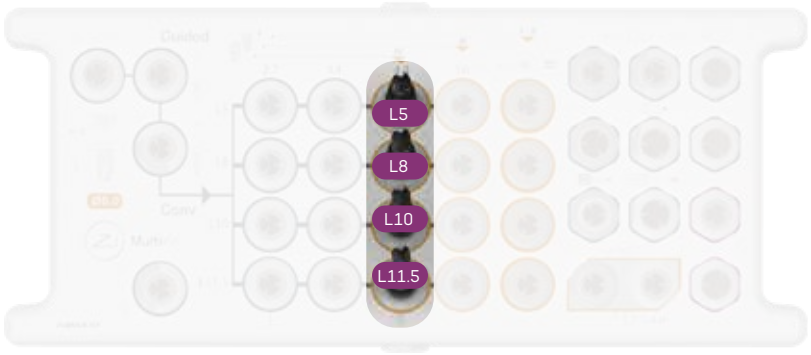
Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The drills have a laser marking for bone level implant placement.

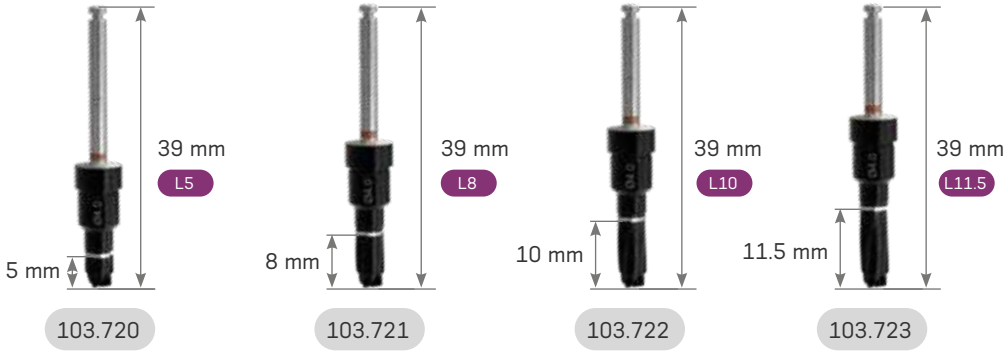


Guided Surgery



Conventional Surgery





Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

Note:

The reduction/preparation of the bone needs to be considered during pre-operative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the insertion depth of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

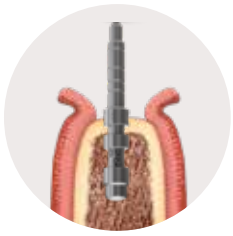
Attention: If you are placing a Neodent Zi Transmucosal Ø 5.0 implant in bone type IV: Stop the drilling protocol and skip to the direction indicator and/or tapered x-ray positioner (conventional surgery), then proceed to the implant placement.

DIRECTION INDICATOR

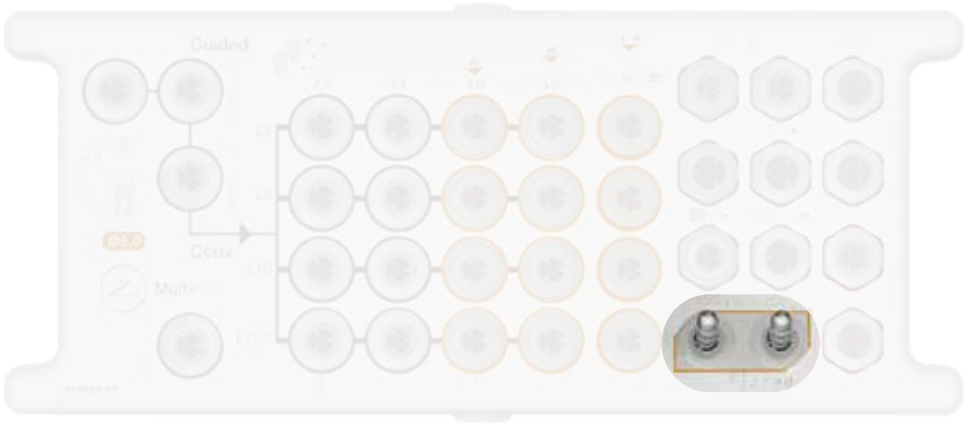
Guided Surgery: Not applicable

Conventional Surgery

After using the final drill according to the implant diameter, check the implant axis using the thicker side of the direction indicator Ø 4.0.



129.040

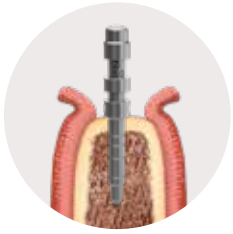


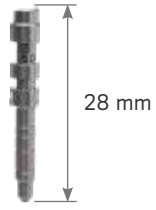
X-RAY HOLDER

Guided Surgery

Conventional Surgery: Optional

A periapical radiograph would be recommended to check for vertical bone availability or to check the axis in relation to the adjacent roots.





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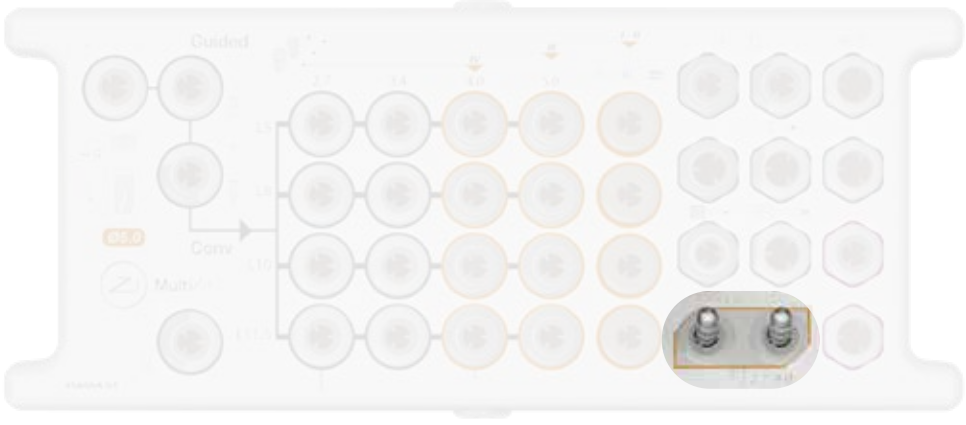
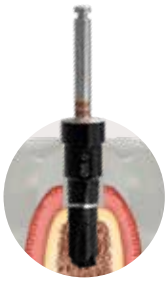


Attention: If you are installing a Neodent®
Zi Transmucosal Ø 5.0 implant **in bone types I or II**: Please move forward.

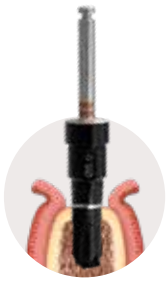
ZI TRANSMUCOSAL Ø 5.0 DRILL

- Guided Surgery
- Conventional Surgery

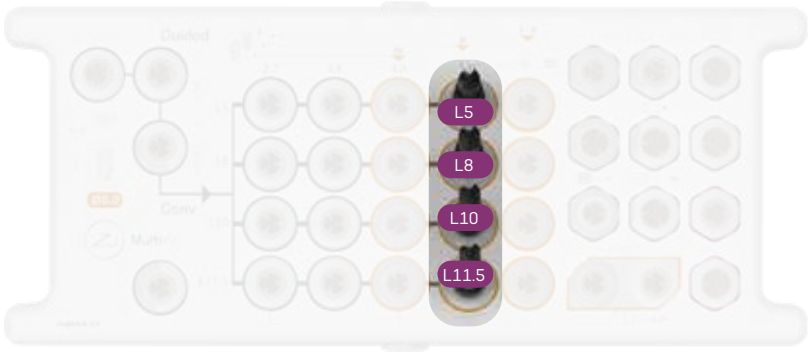
Start the motor and perform bone bed drilling with continuous movements of insertion and removal, under abundant irrigation. This irrigation can be either manual or combined with the irrigation from the motor. During drilling, pressure cannot be excessive. Do not interrupt the rotation of the motor while the drill is inside the surgical cavity, as this may impede its removal or cause it to break. The drills have a laser marking for bone level implant placement.



Guided Surgery



Conventional Surgery



Bone type I and II
800 - 1200 RPM

Bone type III and IV
500 - 800 RPM

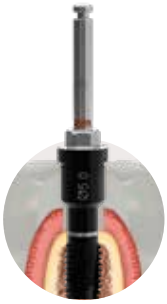
Note:

The reduction/preparation of the bone needs to be considered during pre-operative planning since it influences the choice of implant diameter and length. For Guided Surgery it has a stop which limits the insertion depth of the drills. Insert it until the stop reaches the sleeve or the guide on the sleeveless solution.

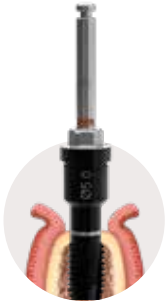
ZI TRANSMUCOSAL Ø 5.0 BONE TAP

- ✓ **Guided Surgery**
- ✓ **Conventional Surgery**

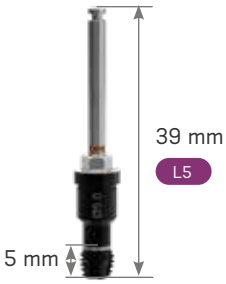
The bone taps are designed for the threads in the surgical alveoli before the Neodent® Zi Transmucosal Ø 5.0 implants placement in cortical bone (type I or type II) and after extraction, during the process of finishing the implant bed preparation. This step is intended to keep the insertion torque at a desirable level.



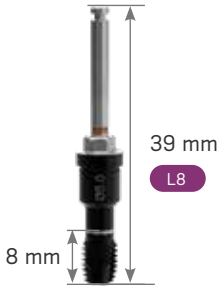
Guided Surgery



Conventional Surgery

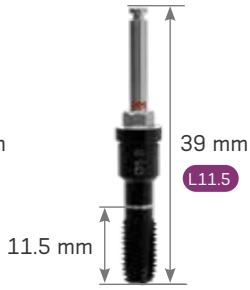


111.054



111.055

111.056



111.057

Bone type I and II
30 RPM
Torque 35 N.cm

In order to use the Bone Tap, follow the steps below:

Step 1: In order to initiate the Bone Tap Insertion, use the Contra Angle handpiece. Fit the Bone Tap into the Contra-Angle and set the surgical motor to maximum drilling speed of 30 RPM and torque of 35 N.cm. Start the motor and insert the Bone Tap in the surgical alveolus, maintaining the perforation axis until stability is obtained and/or the maximum torque of 35 N.cm is achieved.

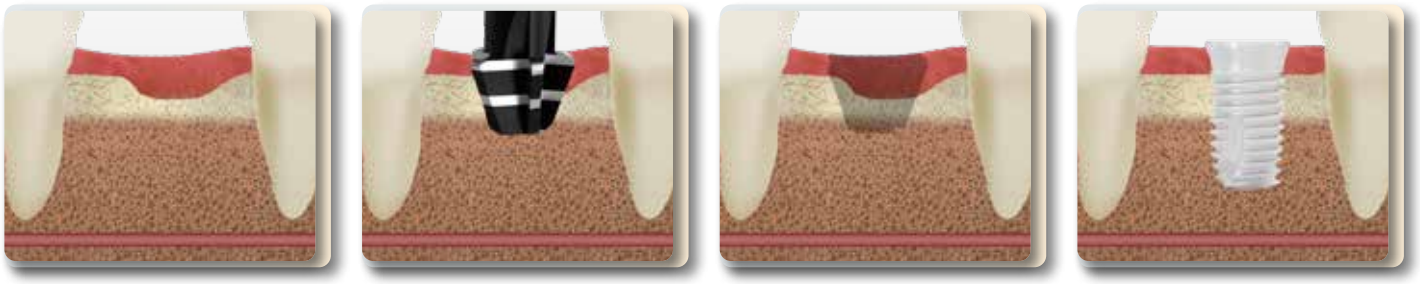
Step 2: Then, proceed with the bone bed preparation with the Torque Wrench, using the Implant Driver for the Torque Wrench. For that, fit the Bone Tap into the Implant Driver for the Torque Wrench and perform insertion movements, in a clockwise direction, slightly pressing the Torque Wrench Driver, considering the maximum torque of 60 N.cm. If it approaches 60 N.cm, it is recommended to apply a counter torque and then continue the insertion. Proceed with the insertion until the Bone Tap for Ceramic Implant reaches the marking corresponding to the chosen implant. For a complete removal of the Bone Tap from the surgical cavity, reverse the Torque Wrench Driver direction to counterclockwise and remove it carefully. If performed differently, its removal can compromise thread formation.

PRECAUTIONS

The wrong instrument combination may cause bone damage. Do not exceed the maximum insertion torque during the implant placement. Applying torque above 60 N.cm may cause damage by breaking the implant. If maximum torque is reached and the insertion cannot be concluded, it is recommended to remove the implant and reprepare the implant bed for a new insertion attempt.

Bone Profile Drill

In cases where the diameter of the implant body is smaller than the prosthetic platform and the bone crest is irregular, it may be necessary to use a bone profile drill to remove interference from the bone and transmucosal collar of the implant.



IMPLANT **PACKAGING**

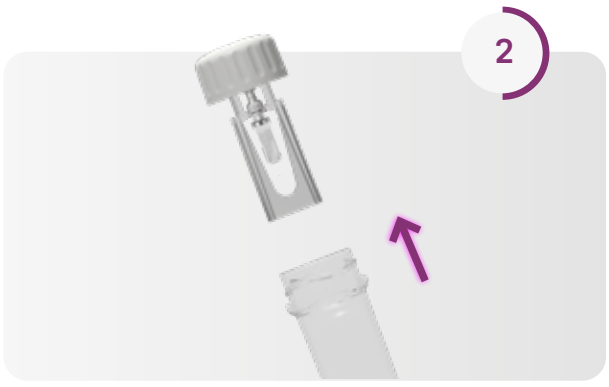
Neodent® packaging has been specially updated for easy handling and seeking to achieve a safe surgical procedure, providing practicality from implant stocking to the capture, transport, and implant bed. The implant's features such as type, diameter and length are readily identifiable on the outside of the packaging.

Three self-adhesive labels are provided for recording in the patient's medical records and for communication with the prosthesis team. They also ensure traceability for all articles.

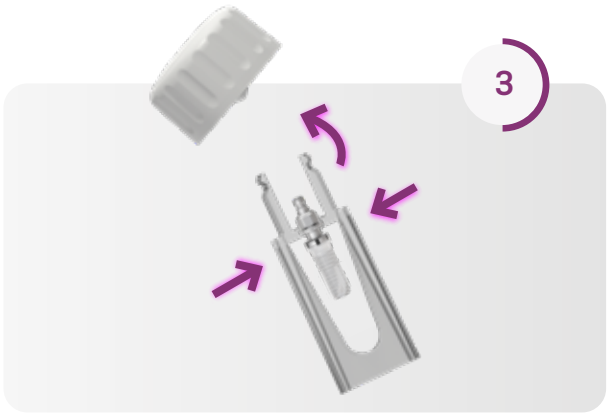
Instructions for opening the implant packaging

The clear tube and implant must be handled with a sterile surgical glove, in a surgical environment. Hold the bottle using the non-dominant hand and take the lid off.

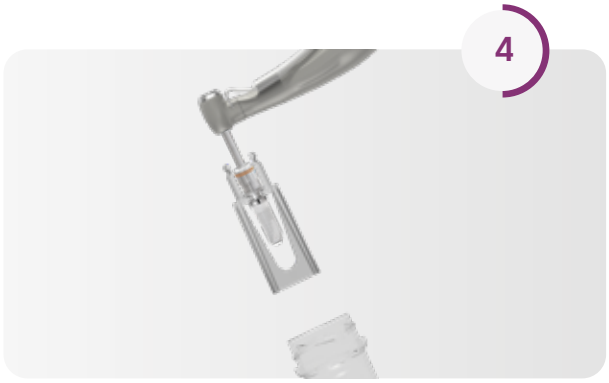
1. The cardboard and blister packaging must be opened, manually, without the use of sterile gloves. Break the seal of the cardboard packaging and remove the blister. Open the blister pack. Deposit the sterile flask over the surgical field;



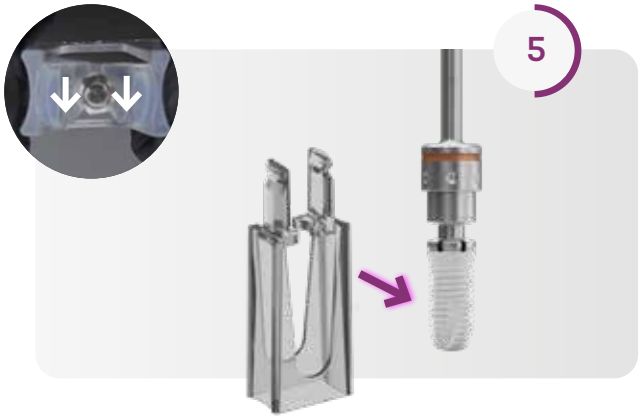
2. The clear tube and implant must be handled with a sterile surgical glove, in a surgical environment. The internal support containing the implant and transfer piece must come out, attached to the lid. To do so, remove the lid and the clear tube's internal support in the axial direction without making any lateral movements;



3 Hold the inner support with the non-dominant hand, keep it stable and remove the cover;



4 For installation, pick up the implant mount with the hex connection, keeping the driver still and slightly rotating the internal holder, and looking for the perfect fit between the driver and the mount;



5 Take the transfer-implant assembly to the surgical cavity.

IMPLANT **PLACEMENT**

Neodent Zi Transmucosal Ø 5.0 implants were developed for installation with the contra-angle handpiece and subsequently completing the installation with the torque wrench. The maximum recommended rotation speed for the surgical motors is 30 RPM, with a maximum torque of 35 N.cm.

CONTRA-ANGLE CONNECTION

Warning: Correcting the vertical position by reversing the rotation during surgery may lead to reduced primary or mechanical stability. **Do not apply lateral forces during implant insertion.**

Attention:
For guided surgery, insert the implant until the driver touches the sleeve or surgical guide.

TORQUE WRENCH CONNECTION

Remove the contra angle connection from the assembler and secure the torque wrench ratchet connection to complete the installation at the level of transmucosal tissue.

Warning: The torque wrench driver should not be used to transport the implant from one place to another because the product can fall out. Apply torque until the implant reaches its final position. All torque wrenches show torque levels a value above 60 N.cm are contraindicated.

Neodent® Zi implants are provided with a transfer piece manufactured in stainless steel, which transfers the torque applied on the connection to the implant. The transfer piece is compatible with the Neodent® Hexagonal Connection.

The assembler is a hexagon compatible with the Neodent® Hexagonal Implant Driver – this feature is used to apply torque during the installation.

PRECAUTION: DO NOT EXCEED TORQUE HIGHER THAN 60 N.CM

The maximum insertion torque for the Zi Transmucosal Ø 5.0 implant is 60 N.cm. Applying a torque higher than 60 N.cm may cause damage to the implant.

If you are placing the implant and realize that the maximum torque is close, it is recommended to remove the implant and reprepare the implant bed for a new insertion attempt.

Guide stabilizer (optional)

The guide stabilizer is used to help stabilize the surgical guide during the procedure, after implant placement using Neodent guided surgery techniques.

Insert the Guide Stabilizer after implant placement, using the Neo Manual screwdriver, fitting it completely, as far as the stop. Gently apply manual torque. Do not use the Guide Stabilizer when primary stability of the implant is less than 20 N.cm.

Immediate or late loading

The implant's final placement torque determines the protocol. The correct and physiological occlusion is also determinant in this definition. The following criteria need to be observed when using the immediate loading protocol:

TORQUE

35 ≤ 60 N.cm

PROSTHETICS PROTOCOL

Immediate loading

Abutment selection

GENERAL FEATURES

Lateral mechanical load on provisional crowns is contraindicated;

Patients should present a balanced or physiological occlusion;

Periodontally compromised patients should have their condition controlled before treatment, especially when a component is exposed to the oral environment.

SOFT TISSUE **MANAGEMENT**

CONVENTIONAL LOADING
Soft tissue management

After implant placement, to protect the implant platform, a cover screw or a healing abutment can be used.

Two stage/ submucosal healing: For under mucosal healing (under a closed mucoperiostal flap) the use of a cover screw is indicated. A second surgical procedure is required to uncover the implant and insert the desired prosthetic abutment. The cover screw of Zi Transmucosal Ø 5.0 is made of PEEK.

Use the Neo Screwdriver to place the cover screw on the implant, with a maximum torque of 10 N.cm.

Zi Transmucosal
Ø 5.0 cover screw

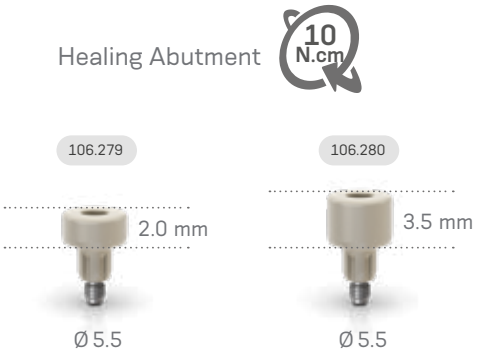
Neo Screwdriver

CONVENTIONAL LOADING
Healing Phase

The Zi Transmucosal Ø 5.0 Healing Abutment and Cover Screw are made of PEEK and are available in a diameter of 5.5 mm (compatible with the top of the tulip). This solution is designed to create a suitable gingival emergence profile, which adapts to the final abutment. Use the Neo Screwdriver to place the Healing Abutment on the implant.

Maximum torque: 10 N.cm.

Healing Abutment



Neo Screwdriver

PROSTHETIC PROCEDURES FOR **UNIVERSAL ZI BASE**

Implant level

Intraoral Scanning

Scanbody of the Zi Transmucosal Ø 5.0 implant

2

108.245

Hybrid Repositionable Analog Zi Transmucosal Ø 5.0

101.110

Model Scanning

Zi Transmucosal Implant 5.0 Exact Impression Coping

2 Closed 108.243 Open 108.244

Hybrid Repositionable Analog Zi Transmucosal Ø 5.0

101.110

Scanbody of the Zi Transmucosal Ø 5.0 implant

2

108.245

Universal Zi Base

	0.3 mm	1.0 mm	1.5 mm
Ø 5.5	135.463	135.464	135.465

32 N.cm 1

Component level

Intraoral Scanning

Model Scanning

Universal Zi Base

	0.3 mm	1.0 mm	1.5 mm
Ø 5.5	135.463	135.464	135.465

32 N.cm 1

Universal Zi Base Scanbody

108.247

Impression coping Zi Universal Base

108.246

Cylindrical Transfer Zi Universal Base

108.246

Hybrid use: can be used as an impression coping and a provisional abutment.

Universal Zi Base Analog

101.111

Universal Zi Base Analog

101.111

Universal Zi Base Scanbody

108.247

Intraoral Scanning

The scanbody is used at implant level or at component level to transfer their positions based on the scanning used in CAD/CAM procedure.

Scanbody of the Zi Transmucosal Ø 5.0 implant.

Universal Zi Base Scanbody.

To perform intra-oral scanning, the dental surgeon must use the Zi Transmucosal Ø 5.0 Scanbody and follow the step by step indicated by the scanner manufacturer. The scanning of a scanbody must capture as much detail as possible and be finished according to the software instructions. Model extraoral scanning is done in the same way.

The final scan files should be sent to the CAD software (chair side) or forwarded to a dental laboratory by CAD/CAM system or by email. The laboratory will receive the final scanning files and will design (CAD software) the future prosthesis. After that, the design will be transferred to the milling machine (CAM). Once the prosthesis is milled, the adjustment should be tested on the Universal Zi Base analog.

Notes:

- The flat surface of the scanbody should be positioned towards the vestibular;

- Make sure that the scanbody is properly seated;

- Scanbodies with damaged implant platform may lead to digitalization problems;

- After digitalization, design the prosthesis in the CAD software.

CARES® Visual Dental Wings 3Shape exocad

Libraries are available for the following software: CARES Visual, exocad GmbH, Dental Wings Inc and 3Shape A/S in www.neodent.com/cadcam. Make sure that your CAD library is updated.

Impression taking

The Transfer Exact for Zi Transmucosal Ø 5.0 implant allows the transfer of the three-dimensional position through impression of the Neodent® Zi Transmucosal Ø 5.0 implant. The solution is for molding techniques with closed and open tray. Within the closed tray technique, a negative impression of the post is made using an impression material. The impression coping is then removed from the oral cavity and adapted to the impression material in the tray.

• Fit the Transfer body with the selected implant, with the neo screwdriver until the entire assembly is stable (maximum torque: 10 N.cm);
• Perform the impression;
• Place the transfer and hybrid repositionable analog on the mold.

Transfer Exact for Transmucosal Zi implant Ø 5.0 for closed tray


Hybrid Repositionable Analog Zi Transmucosal Ø 5.0


Neo Screwdriver

In the open tray technique, the transfer body must fit into the selected implant and the screw should be tightened manually or with the aid of a Torque Connection. The transfers should be screwed-out and removed from the patient's mouth with the impression material in the tray. Ensure that the transfer is not moved during the fitting of the analog.

• Install the open tray transfer on the implant;
• Perform the impression;
• Place the Hybrid Repositionable Analog on the mold.

Transfer Exact for Zi Transmucosal Ø 5.0 implant for open tray


Hybrid Repositionable Analog Zi Transmucosal Ø 5.0


Neo Screwdriver

After performing the impression:
• Ensure that the transfer is correctly adjusted and positioned.
• Place the analog in the right position.
• Continue with placing the artificial gingiva and pouring the plaster mixture. Check if there are no bubbles and if all the details have been accurately replicated.
• Neodent® has developed a new generation of analogs, which can be used either in the conventional (plaster model) or the digital workflows (printed model), for prototyped models. They are called Hybrid Repositionable Analogs and are available for Neodent® Zi Transmucosal Ø 5.0 implant portfolio.

Impression Taking with Zi Universal Base Impression Coping:

This type of impression taking is made at component level, fitting the Zi Universal Base impression coping into the screwed component in the mouth until it “clicks”, performing the closed tray impression taking technique and then making the plaster model to be scanned.

Provisional and final abutment:

The Universal Zi Base does not require another provisional, and it is the only part required for provisional and final components.

Provisional Restoration:

Place the cylindrical/coping transfer over the prosthetic component itself for direct acrylization and remove the upper end at the height of the channel.

The provisional prosthesis should be polished before cementation in the mouth, and, for use as a temporary coping, use it in parallel prostheses, without angulation. The prosthesis is then cemented into the mouth following the cement manufacturer's instructions.

Always protect the screw access during the cementing process, if applicable.

Final Restoration:

The final prosthesis should be cemented on the Zi Transmucosal Ø 5.0 Ceramic Universal Base screwed to a maximum torque of 32 N.cm. For cementing in the mouth, follow the cement manufacturer’s instructions. Protect the screw access (with Teflon and compounded resin) during the cementing process. Passivity and adaptation tests of the prosthesis structure must be performed.

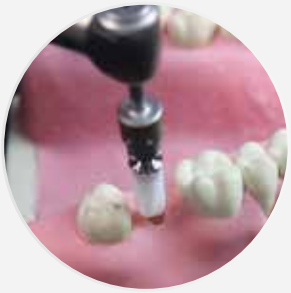
STEP BY STEP PLACEMENT OF THE **ZI TRANSMUCOSAL IMPLANT Ø 5.0**

1 Implant bed preparation.

2A In bone types I and II: use of Bone Tap with Contra-Angle.

2B In bone types I and II: use of Bone Tap with Torque-Wrench.

3 Placement of Neodent® Zi Transmucosal Ø 5.0 implant.



4 Attention! Maximum torque of 60 N.cm.

5 Soft tissue management: Zi Transmucosal Ø 5.0 cover screw.

6 Healing phase: Zi Transmucosal Ø 5.0 healing abutment.

UNIVERSAL ZI BASE WORKFLOW
IMPLANT LEVEL STEP BY STEP

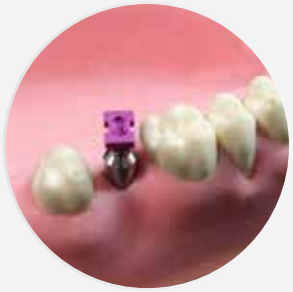
Intraoral Scanning

1) Placement of the Zi Transmucosal Ø 5.0 Scanbody on the Zi Transmucosal Ø 5.0 implant.

2) Intraoral scanning.

Model Scanning

1) Impression transfer placement on the Zi Transmucosal Ø 5.0 implant.



2) Model scanning with Zi Transmucosal Ø 5.0 Scanbody on the Zi Transmucosal Ø 5.0 Analog.

3) Provisional phase: Provisional crown with PEEK provisional coping/impression transfer over the Universal Zi base.

4) Planning of the prosthesis in the software.

5) Final Restoration: Imprint of the prosthesis and installation on the Universal Zi Base in the patient's mouth.

UNIVERSAL ZI BASE WORKFLOW
COMPONENT LEVEL STEP BY STEP

Intraoral Scanning

1) Universal Zi Base Scanbody placement on the Universal Zi Base.

2) Intraoral scanning.

Model Scanning

1) Universal Zi Base intraoral impression with Universal Zi Base Impression Coping.

2) Model scanning with the Universal Zi Base Scanbody on the Universal Zi Base analog.

3) Provisional phase: Provisional crown with PEEK provisional coping/impression transfer over the Universal Zi base.

4) Planning of the prosthesis in the software.

5) Final Restoration: Imprint of the prosthesis and installation on the Universal Zi Base in the patient's mouth.

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